> d his

(FILE 'USPAT' ENTERED AT 11:49:55 ON 14 DEC 1997)
L1 26 S (ANTIFREEZE OR ANTI FREEZE)(5A)(PEPTIDE# OR PROTEIN#)
L2 18 S L1 AND FISH
L3 3 S L1 AND (ICE CREAM# OR WATER ICE#)
L4 0 S L3 AND ASPECT RATIO
L5 3 S L3 AND CRYSTAL?
L6 1 S L3 AND (MIX?(5A)ICE CREAM)
L7 1 S L6 AND FISH

=> s l1 and aspect ratio
344645 ASPECT
524158 RATIO
12524 ASPECT RATIO
(ASPECT(W)RATIO)
L8 0 L1 AND ASPECT RATIO

=> s l1 and crystal?
288503 CRYSTAL?
L9 16 L1 AND CRYSTAL?

=> d l5 1-3

1. 5,676,985, Oct. 14, 1997, Antifreeze polypeptide-expressing microorganisms useful in fermentation and freezing of foods; Garth L. Fletcher, et al., 426/36, 34, 42; 435/41, 71.1, 252.9, 253.4; 530/350 :IMAGE AVAILABLE:

2. 5,620,732, Apr. 15, 1997, Method of making **ice cream**; John F. Clemmings, et al., 426/565, 100, 101, 104, 139, 656, 660 :IMAGE AVAILABLE:

3. 5,118,792, Jun. 2, 1992, Ice **crystal** growth suppression polypeptides and method of making; Gareth J. Warren, et al., 530/350; 426/321, 656, 657; 435/69.1, 69.7 :IMAGE AVAILABLE:

=> d l9 1-16

1. 5,686,249, Nov. 11, 1997, Test for determining frost hardiness of conifer seedlings and protein and antibody related thereto; Abul K. M. Ekramoddoullah, 435/7.1, 7.92, 975; 530/350, 387.1; 800/200, DIG.51 :IMAGE AVAILABLE:

2. 5,676,985, Oct. 14, 1997, Antifreeze polypeptide-expressing microorganisms useful in fermentation and freezing of foods; Garth L. Fletcher, et al., 426/36, 34, 42; 435/41, 71.1, 252.9, 253.4; 530/350 :IMAGE AVAILABLE:

3. 5,654,279, Aug. 5, 1997, Tissue destruction in cryosurgery by use of thermal hysteresis; Boris Rubinsky, et al., 514/21; 128/DIG.27; 514/8; 606/20, 21 :IMAGE AVAILABLE:

4. 5,648,575, Jul. 15, 1997, Method for inhibiting the plugging of conduits by gas hydrates; Ulfert Cornelis Klomp, et al., 585/15, 899 :IMAGE AVAILABLE:

5. 5,633,451, May 27, 1997, Transgenic plants having a nucleic acid sequence encoding a dendroides **antifreeze protein**; John G. Duman,

800/205; 435/69[redacted] 419; 536/23.5; 800/250 :IMAGE [redacted]VAILABLE:

6. 5,627,051, May 6, 1997, Nucleic acid sequences encoding dendroides **antifreeze proteins**; John G. Duman, 435/69.1; 536/23.5, 24.31 :IMAGE AVAILABLE:

7. 5,622,698, Apr. 22, 1997, Method and composition for increasing the supercooling point in invertebrates; Richard E. Lee, Jr., 424/93.4; 435/243, 252.34, 847, 874 :IMAGE AVAILABLE:

8. 5,620,732, Apr. 15, 1997, Method of making ice cream; John F. Clemmings, et al., 426/565, 100, 101, 104, 139, 656, 660 :IMAGE AVAILABLE:

9. 5,550,318, Aug. 27, 1996, Methods and compositions for the production of stably transformed, fertile monocot plants and cells thereof; Thomas R. Adams, et al., 800/205; 435/172.1, 172.3, 412, 413; 800/DIG.56 :IMAGE AVAILABLE:

10. 5,489,520, Feb. 6, 1996, Process of producing fertile transgenic zea mays plants and progeny comprising a gene encoding phosphinothricin acetyl transferase; Thomas R. Adams, et al., 435/172.3, 172.1; 536/23.7; 800/205, DIG.56 :IMAGE AVAILABLE:

11. 5,460,728, Oct. 24, 1995, Method for inhibiting the plugging of conduits by gas hydrates; Ulfert C. Klomp, et al., 210/698; 252/70, 71, 77; 585/15, 899, 950 :IMAGE AVAILABLE:

12. 5,358,931, Oct. 25, 1994, Interaction of thermal hysteresis proteins with cells and cell membranes and associated applications; Boris Rubinsky, et al., 514/12; 424/523; 435/1.3, 2; 514/2, 8, 21 :IMAGE AVAILABLE:

13. 5,356,816, Oct. 18, 1994, Method and compositions using polypeptides of arabidopsis thaliana; Michael F. Thomashow, 435/320.1; 530/370, 379; 536/23.6 :IMAGE AVAILABLE:

14. 5,296,462, Mar. 22, 1994, Method and compositions using polypeptides of arabidopsis thaliana; Michael F. Thomashow, 514/2, 12; 530/324, 350, 370, 379; 536/23.6 :IMAGE AVAILABLE:

15. 5,118,792, Jun. 2, 1992, Ice **crystal** growth suppression polypeptides and method of making; Gareth J. Warren, et al., 530/350; 426/321, 656, 657; 435/69.1, 69.7 :IMAGE AVAILABLE:

16. 4,952,229, Aug. 28, 1990, Plant supplement and method for increasing plant productivity and quality; Hugh M. Muir, 71/7; 47/58; 71/6, 23, 903, 904, DIG.2 :IMAGE AVAILABLE:

=> s l1 not (l5 or l9)
L10 10 L1 NOT (L5 OR L9)

=> d l10 1-10

1. 5,695,954, Dec. 9, 1997, DNA encoding two fish neuropeptides; Nancy Gail McKeown Sherwood, et al., 435/69.1, 69.2, 69.4, 252.3, 320.1, 325, 365.1; 536/23.1, 23.51; 935/11 :IMAGE AVAILABLE:

2. 5,670,354, Sep. 23, 1997, Use of VSV-G pseudotyped vectors for transfer of genes into embryos; Jane C. Burns, et al., 435/172.3, 320.1; 800/2 :IMAGE AVAILABLE:

3. 5,545,808, Aug. 13, 1996, Transgenic salmonid fish expressing exogenous salmonid growth hormone; Choy L. Hew, et al., 800/2; 435/69.4, 172.3; 800/DIG.1; 935/63 :IMAGE AVAILABLE:

4. 5,512,421, [redacted] 30, 1996, Generation, concen[redacted]tion and efficient transfer of VSV-G pseudotyped retroviral vectors; Jane C. Burns, et al., 435/320.1; 424/93.2; 435/239; 935/32 :IMAGE AVAILABLE:

5. 5,496,550, Mar. 5, 1996, Method of reducing the output of Eimeria oocysts from a newborn chick; Michael Wallach, et al., 424/184.1, 267.1, 271.1, 276.1; 435/69.1, 69.3 :IMAGE AVAILABLE:

6. 5,455,164, Oct. 3, 1995, Ruminant immortalized mammary epithelial cell lines; Jeffrey D. Turner, 435/375, 6, 172.3, 325, 948; 935/70, 111 :IMAGE AVAILABLE:

7. 5,278,284, Jan. 11, 1994, Protein purification method; Lance T. Lusk, et al., 530/305, 412, 415 :IMAGE AVAILABLE:

8. 5,251,398, Oct. 12, 1993, Fibrous coatings for protecting fruit bearing or blossoming trees, shrubs or other vegetation from freeze and frost; Leslie L. Balassa, 47/2, 58 :IMAGE AVAILABLE:

9. 5,177,011, Jan. 5, 1993, Plant elongation factor promoters, coding sequences and uses; Christine K. Shewmaker, et al., 435/172.3, 172.1, 317.1, 423; 536/23.6, 24.1; 800/205; 935/35, 64 :IMAGE AVAILABLE:

10. 4,977,085, Dec. 11, 1990, Cloning and expression of yeast STE13 and Dpp2 genes encoding dipeptidyl aminopeptidase A and B; George Sprague, et al., 435/212, 172.3, 224, 254.2, 320.1; 536/23.2, 24.1; 935/14, 28, 60, 69, 70 :IMAGE AVAILABLE:

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=> d his

     (FILE 'USPAT' ENTERED AT 11:49:55 ON 14 DEC 1997)
L1            26 S (ANTIFREEZE OR ANTI FREEZE)(5A)(PEPTIDE# OR PROTEIN#)
L2            18 S L1 AND FISH
L3             3 S L1 AND (ICE CREAM# OR WATER ICE#)
L4             0 S L3 AND ASPECT RATIO
L5             3 S L3 AND CRYSTAL?
L6             1 S L3 AND (MIX?(5A)ICE CREAM)
L7             1 S L6 AND FISH
L8             0 S L1 AND ASPECT RATIO
L9            16 S L1 AND CRYSTAL?
L10           10 S L1 NOT (L5 OR L9)

=> s l1 and frozen food#
          36014 FROZEN
          87407 FOOD#
           2310 FROZEN FOOD#
                  (FROZEN(W)FOOD#)
L11           2 L1 AND FROZEN FOOD#

=> d l11 1-2

1.  5,676,985, Oct. 14, 1997, Antifreeze polypeptide-expressing
microorganisms useful in fermentation and freezing of foods; Garth L.
Fletcher, et al., 426/36, 34, 42; 435/41, 71.1, 252.9, 253.4; 530/350
:IMAGE AVAILABLE:

2.  5,118,792, Jun. 2, 1992, Ice crystal growth suppression polypeptides
and method of making; Gareth J. Warren, et al., 530/350; 426/321, 656,
657; 435/69.1, 69.7 :IMAGE AVAILABLE:
```

=> d 19 2,8,15

2. 5,676,985, Oct. 14, 1997, Antifreeze polypeptide-expressing microorganisms useful in fermentation and freezing of foods; Garth L. Fletcher, et al., 426/36, 34, 42; 435/41, 71.1, 252.9, 253.4; 530/350 :IMAGE AVAILABLE:

8. 5,620,732, Apr. 15, 1997, Method of making ice cream; John F. Clemmings, et al., 426/565, 100, 101, 104, 139, 656, 660 :IMAGE AVAILABLE:

15. 5,118,792, Jun. 2, 1992, Ice **crystal** growth suppression polypeptides and method of making; Gareth J. Warren, et al., 530/350; 426/321, 656, 657; 435/69.1, 69.7 :IMAGE AVAILABLE:

=> d 19 2,8,15 kwic

US PAT NO: 5,676,985 :IMAGE AVAILABLE: L9: 2 of 16

SUMMARY:

BSUM(6)

Frozen . . . as its flavor is important to consumers. Texture is to a large extent governed by the size of the ice **crystals**. Producers of these frozen deserts have gone to considerable effort and expense to ensure smooth textured products. However, during frozen storage the ice **crystals** can grow and thus roughen and spoil this texture. The growth of ice **crystals** during frozen storage is known as recrystallization. This problem is particularly common when the frozen storage conditions are less than. . .

SUMMARY:

BSUM(9)

At the present time **antifreeze proteins** are available for commercial use from two sources; the blood serum from a small number of fish species found in. . . and recombinant DNA techniques such as those described by (but not restricted to) Warren et al., supra. Other sources of **antifreeze proteins**, such as transgenic plants and animals, are currently being explored. Regardless of the source, the antifreeze polypeptides must be isolated. . .

SUMMARY:

BSUM(11)

An . . . incorporating antifreeze polypeptides into frozen fermented food products is to have the organism responsible for the fermentation process produce the **antifreeze proteins** while fermenting the food. A number of antifreeze polypeptides and their genes have been well characterized and sequenced (see, e.g.. . .

SUMMARY:

BSUM(16)

The . . . and others). According to the invention these

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     (FILE 'HOME' ENTERED AT 16:07:45 ON 14 DEC 1997)

     FILE 'FSTA' ENTERED AT 16:07:51 ON 14 DEC 1997
L1            45 S (ANTIFREEZE OR ANTI FREEZE)(3A)(PEPTIDE# OR PROTEIN#)
L2             2 S L1 AND ICE CREAM#
L3             9 S L1 AND FROZEN FOOD#
L4             4 S (ANTIFREEZE OR ANTI FREEZE)(3A)POLYPEPTIDE#
L5            14 S L2 OR L3 OR L4
L6             7 S L5 AND CRYSTAL?
L7             0 S L5 AND ASPECT RATIO
L8             0 S L1 AND ASPECT RATIO
L9             0 S L1 AND ASPECT RATIO#

=> s l4 and frozen food#

         19092 FROZEN
        151216 FOOD#
          8768 FROZEN FOOD#
                 (FROZEN(W)FOOD#)
L10          0 L4 AND FROZEN FOOD#

=> s l4 and ice cream

          7983 ICE
         12084 CREAM
          4776 ICE CREAM
                 (ICE(W)CREAM)
L11          0 L4 AND ICE CREAM
```

LA English

L6 ANSWER 4 OF 7 FSTA COPYRIGHT 1997 IFIS
AN 94(07):S0004 FSTA FS FSTA
TI The effects of **antifreeze proteins** on chilled and frozen meat.
AU Payne, S. R.; Sandford, D.; Harris, A.; Young, O. A.
CS Meat Industry Research Institute of New Zealand (Inc.), PO Box 617, Hamilton, New Zealand
SO Meat Science, (1994) 37 (3) 429-438, 14 ref.
ISSN: 0309-1740.
DT Journal
LA English

L6 ANSWER 5 OF 7 FSTA COPYRIGHT 1997 IFIS
AN 94(07):R0024 FSTA FS FSTA
TI Single **crystals** of a type III **antifreeze polypeptide** from ocean pout.
AU Yi Qi Xue; Sicheri, F.; Ala, P.; Hew, C. L.; Yang, D. S. C.
CS Dep. of Biochem., McMaster Univ., Hamilton, Ont., Canada
SO Journal of Molecular Biology, (1994) 238 (3) 351-352, 7 ref.
ISSN: 0022-2836.
DT Journal
LA English

L6 ANSWER 6 OF 7 FSTA COPYRIGHT 1997 IFIS
AN 93(04):A0041 FSTA FS FSTA
TI **Antifreeze proteins**: properties, mechanism of action, and possible applications.
AU Feeney, R. E.; Yin Yeh
CS Dep. of Food Sci., Univ. of California, Davis, CA 95616, USA
SO Food Technology, (1993) 47 (1) 82, 84-88, 90, 67 ref.
ISSN: 0015-6639.
DT Journal
LA English

L6 ANSWER 7 OF 7 FSTA COPYRIGHT 1997 IFIS
AN 92(05):R0023 FSTA FS FSTA
TI The effect of enhanced .alpha.-helicity on the activity of a winter flounder **antifreeze polypeptide**.
AU Chakrabartty, A.; Hew, C. L.
CS Correspondence (Reprint) address, C. L. Hew, Univ. of Toronto, Toronto, Ont. M5G 1L5, Canada
SO European Journal of Biochemistry, (1991) 202 (3) 1057-1063, 25 ref.
ISSN: 0014-2956.
DT Journal
LA English

=> d his

(FILE 'HOME' ENTERED AT 16:07:45 ON 14 DEC 1997)

FILE 'FSTA' ENTERED AT 16:07:51 ON 14 DEC 1997
L1 45 S (ANTIFREEZE OR ANTI FREEZE)(3A)(PEPTIDE# OR PROTEIN#)
L2 2 S L1 AND ICE CREAM#
L3 9 S L1 AND FROZEN FOOD#
L4 4 S (ANTIFREEZE OR ANTI FREEZE)(3A)POLYPEPTIDE#
L5 14 S L2 OR L3 OR L4
L6 7 S L5 AND CRYSTAL?
L7 0 S L5 AND ASPECT RATIO
L8 0 S L1 AND ASPECT RATIO
L9 0 S L1 AND ASPECT RATIO#

=> s l4 and frozen food#

```
         19092 [redacted]EN
        151216 F[redacted]#
          8768 FROZEN FOOD#
                 (FROZEN(W)FOOD#)
L10          0 L4 AND FROZEN FOOD#

=> s l4 and ice cream

          7983 ICE
         12084 CREAM
          4776 ICE CREAM
                 (ICE(W)CREAM)
L11          0 L4 AND ICE CREAM
```